METHOD FOR ROUGHENING COPPER SURFACES FOR BONDING TO SUBSTRATES

ABSTRACT

The invention is directed to a method and composition for providing roughened copper surfaces suitable for subsequent multilayer lamination. A smooth copper surface is contacted with an adhesion promoting composition under conditions effective to provide a roughened copper surface, the adhesion promoting composition consisting essentially of an oxidizer, a pH adjuster, a topography modifier, and a uniformity enhancer. A coating promoter may be used in place of the uniformity enhancer or in addition to the uniformity enhancer. The adhesion promoting composition does not require a surfactant. The process may further comprise the step of contacting the uniform roughened copper surface with a post-dip, wherein the post-dip comprises an azole or silane compound or a combination of said azole and said silane. The post-dip may further comprise, alone or in combination, a titanate, zirconate, and an aluminate. The pH adjuster is preferably sulfuric acid and the oxidizer is preferably hydrogen peroxide. A hydrogen peroxide stabilizer may be used in the adhesion promoting composition.